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SURVEY OF CURRENTLY EMPLOYED NURSE AIDES IN CHICAGO.
CHICAGO BOARD OF EDUCATION, ILL.

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THE PURPOSES OF A DEMONSTRATION PROGRAM IN HEALTH OCCUPATIONS WERE TO SET UP AN ADVISORY COMMITTEE TO DETERMINE SPECIFIC OCCUPATIONS TO BE GIVEN PRIORITY FOR TRAINING, TO CONDUCT A TESTING PROGRAM AMONG CURRENT WORKERS IN THE HEALTH OCCUPATIONS, AND TO CONDUCT A RECRUITMENT PROGRAM. THE ADVISORY COMMITTEE RECOMMENDED THAT AN EDUCATIONAL PROGRAM BE INITIATED FOR THE SUBPROFESSIONAL PERSONNEL. AS ONE IMPORTANT SUBPROFESSIONAL GROUP, NURSE AIDES WERE CHOSEN TO PARTICIPATE IN THE TESTING PROGRAM TO DETERMINE THE ABILITY THRESHOLDS NECESSARY FOR SUCCESSSFUL JOB PERFORMANCE. THE CALIFORNIA CAPACITY QUESTIONNAIRE, THE NELSON READING TEST, A PERFORMANCE ASSESSMENT FORM, AND A PRETEST IDENTIFICATION FORM WERE ADMINISTERED TO 1,136 AIDES IN 29 INSTITUTIONS. SOME FINDINGS WERE--(1) THE GENERAL MENTAL ABILITY OF THE NURSE AIDES RANGED FROM 50 TO 140, AND THE READING LEVEL RANGED FROM BELOW THE SECOND GRADE TO ABOVE THE 10TH, (2) UNMARRIED "NURSING" AIDES RECEIVED LOWER RATINGS THAN THE MARRIED IN QUALITY OF CARE GIVEN, ABILITY TO ORGANIZE AND COMPLETE AN ASSIGNMENT, AND CARE OF THE INCONTINENT, (3) THE YOUNGER "NURSING" AIDES RATED LOWER THAN THE OLDER IN ECONOMICAL USE OF SUPPLIES, AND (4) 66 PERCENT WERE RATED AS AVERAGE PERFORMERS AND 31 PERCENT ABOVE AVERAGE. BECAUSE OF THE EFFECT OF EXTRANEOUS FACTORS ON THE TEST SCORES, THE LOWER 10 PERCENT WERE REJECTED, AND THE GENERAL MENTAL ABILITY THRESHOLD FOR THE AIDES WAS ASSIGNED AT 65 AND THE READING COMPREHENSION THRESHOLD AT THE 4.2 GRADE LEVEL. AN INCREASED RECRUITMENT PROGRAM FOR PRACTICAL NURSES AND OPERATION ROOM TECHNICIANS WAS EFFECTED. THE AIDE ASSESSMENT INSTRUMENT AND A BIBLIOGRAPHY ARE INCLUDED. (BS)

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SURVEY OF CURRENTLY EMPLOYED NURSE AIDES IN CHICAGO

Department of Vocational
and Practical Arts Education

BOARD OF EDUCATION CITY OF CHICAGO

1966

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SURVEY OF CURRENTLY EMPLOYED NURSE AIDES IN CHICAGO

DEPARTMENT OF VOCATIONAL
AND PRACTICAL ARTS EDUCATION
BOARD OF EDUCATION
CITY OF CHICAGO

1966

FOREWORD

With the growing need for prepared personnel in the health field, the Department of Vocational and Practical Arts Education of the Chicago Board of Education has acknowledged its responsibility in this area in a variety of ways. Over 3600 graduates of the Practical Nursing Program of the Chicago public schools have made a very real contribution to patient care in Chicago. Programs to prepare operating room technicians and to upgrade aides and cooks in long-term-care facilities are more recent offerings. In autumn 1966, high school juniors and seniors became involved in Operating Room Technician and Practical Nursing programs, as well as hospital aide and medical record transcriptionist training. These young people will provide another sizable group well prepared to function in the health field.

Cooperative Education is another avenue which the Department of Vocational and Practical Arts Education uses to acquaint high school juniors and seniors with and prepare them for jobs in the health field.

The survey reported in this paper is another contribution to the health field by the Department of Vocational and Practical Arts Education. As is the case in all successful undertakings, many people made important contributions to this survey. Especially the nursing service personnel in each of the participating agencies were of invaluable assistance in gathering the necessary data. Appreciation is expressed also to the administrative group, the advisory committee, and all other individuals who gave support and counsel to the undertaking.

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Sincere appreciation for her efforts in the preparation of this study is extended to Miss Erika Juska, teacher in the Practical Nursing Program in the Chicago public schools and investigator for the project.

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I

APPROVED PROPOSAL FOR A DEMONSTRATION PROGRAM IN HEALTH OCCUPATIONS[1]

In 1965 the Division of Research and Statistics of the State Board of Vocational Education and Rehabilitation approved a demonstration program in Health Occupations submitted by the Department of Vocational and Practical Arts Education of the Chicago Public Schools. Documenting the need for this program, the submitted proposal stated that:

> The fifth largest and fastest growing industry in the United States is the health field. There has been a 50 percent growth in the health field in the last ten years as compared with 15 percent in other fields. In 1940 for every M.D. there were five allied health workers; today that number is about fifteen.[2]
>
> The United States Department of Labor lists 150 health occupations, but with the exception of the professional groups and a few other occupations such as those of the practical nurse, lab technician and occupational therapy assistant, there are no recognized pre-service training programs in Chicago to prepare people for employment in this rapidly expanding field. As a result, health agencies have been trying to meet this need by giving on-the-job training. Accepting the financial responsibility for preparing their workers has been a big factor in increased cost of patient care. This cost then is being borne by the group least able to pay--the sick and incapacitated. There is evidence that turnover is greater and more supervision is required for these people trained on the job, both factors adding to the patient care costs. A special characteristic of the health field is that, since patients must be cared for, agencies use the less skilled if skilled workers are not available. This practice adversely affects the quality of patient care.[3]

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[1] Health occupations are defined as those occupations or jobs in which persons render supportive services to the health professions--such as nursing, medical and dental practice which are concerned with providing diagnostic, therapeutic, preventive, restorative and rehabilitative services to people. (Walter M. Arnold, Memorandum to Directors of Health Occupations Training Programs, October, 1965.)

[2] Robert M. Sigmond, Executive Director, Hospital Council of Western Pennsylvania, in a presentation at State Vocational Supervisors' Clinic conducted by the Department of Health, Education, and Welfare, April, 1964, Chicago, Illinois.

[3] Helen J. Evans, Director, Vocational Education for Girls, Department of Vocational and Practical Arts Education, Chicago Public Schools, Application for Approval Demonstration Program in Health Occupations, p. 1.

Objectives of the Counseling Program in Health Occupations

The following were cited in the Application for Approval Demonstration Program in Health Occupations:

1. To set up an advisory committee of people from parent professions to determine specific occupations which should be given priority for training

2. To conduct a testing program among workers currently engaged in the health occupations, to determine ability thresholds necessary for successful performance in specific health occupations

3. To conduct a recruitment program in an effort to determine the potential of recruits for health occupations education.

Implementation of the Counseling Program's Objectives

An advisory committee of people from parent professions was organized to help determine specific occupations which should be given priority for training. At its meeting on February 2, 1965, committee members representing health and education agencies spoke of the training needs for sub-professional personnel in supportive roles in various health fields. An interest was expressed in the expansion of the health occupation opportunities at the sub-professional level for students at various ability levels.

Particular attention was drawn to the trend toward specialization in nursing. A concern was expressed about the mushrooming of sub-professional groups and the diversity of preparation in various institutions. A study showed that the number of hours of on-the-job training which nurse aides receive ranged from 2 to 148.[4]

Among several recommendations made, one was:

> an educational program be initiated for the sub-professional personnel by the Board of Education to assure establishing and safeguarding of sound educational standards.[5]

Nurse aides, a sub-professional group employed in hospitals and facilities for long term medical care, represent the largest segment of nursing service personnel and occupy the supportive functional level on the nursing team. The nurse aide, in a supportive role, performs tasks which

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[4] Board of Education, City of Chicago, Minutes of Meeting, February 2, 1965, Health Occupations Advisory Committee. (In the files of the Board, p. 5.)

[5] Ibid., p. 5.

assist the nurse in giving direct or indirect patient care. It has also been stated that because of more limited nursing-home budgets, fewer professional nurses can be hired. This situation increases the need for more adequately trained personnel at the sub-professional level.[6] Employers of nurse aides admit the high cost of training programs and this cost is considered a major factor in the increased cost of patient care. Pre-service training programs in a nonprofit educational institution have an economic practicality as well as an assurance of sound educational standards.

A Statement of Policies and Recommendations issued by the American Nurses' Association, September, 1965, recommends:

> that a broad based educational program be initiated for applicants seeking to enter the health occupations....It is further recommended that this broad-based educational program preferably be conducted under the auspices of a nonprofit educational institution. The program could be adapted to the high school level as an elective organized course of study . . .[7]

Implementation of the second objective of the counseling program involved testing of workers currently engaged in the health occupations. Because of the emphasis on and interest in the quality preparation of the nurse aide, this sub-professional nursing group was selected for the testing program.

Implementation of the third objective of the counseling program was effected with an increased recruitment effort under the auspices of the Demonstration Program in Health Occupations. Since February 1965, potential students for two health occupations programs--practical nursing and operating room technician--have been sought through radio spot announcements; newspaper advertisements; visits to high-school counselors; attendance at high school career day programs; city-wide distribution of descriptive flyers to hospitals, churches, synagogues, high schools, and junior colleges; and answers to individual requests for information.

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[6] Ibid., p. 3.

[7] American Nurses' Association, Health Occupations Supportive to Nursing, New York, September, 1965, p. 5.

II

STUDY OF CURRENTLY EMPLOYED NURSE AIDES THROUGH TESTING PROGRAM

Definitions of Terms

Terms used in this report are defined as follows:

Ability threshold--The lowest level of acceptable performance as measured by test scores, e.g., in reading and general mental ability.

Nurse aide--A person employed and trained by a health agency to perform tasks which assist the nurse in nursing and non-nursing functions.

Nursing aide--A classification used in this study for the nurse aide assigned to assist in nursing functions.

Non-nursing aide--A classification used in this study for the nurse aide assigned to assist in non-nursing functions such as transportation, central supply, linen room, housekeeping, out-patient clinics, or operating room.

Health agency--An organization such as a general hospital or a facility for long term care which is equipped and staffed to offer medical and nursing services to the community.

Facility for long term care--A nursing or convalescent home for the aging staffed and equipped for the accommodation of individuals who are not in need of hospital care but who are in need of nursing care and related medical services.

Need for the Study

There is a need to offer quality training preparation of the nurse aide. While it is anticipated that on-the-job training programs will continue to meet present needs, pre-service training programs in nonprofit educational institutions are being started. (An 8-week nurse aide pre-service training program was started by the Chicago Board of Education in June 1965.) Institutions will need to gear course curricula to the academic level of the trainee. Some results of this study may help to identify general mental ability and reading levels necessary for satisfactory academic achievement and, later, job performance.

The American Hospital Association has stated:

> Techniques that may improve methods of selection, placement, and promotion of hospital personnel are needed and must be sought. The American Hospital Association encourages all individuals and organizations that are interested and qualified to conduct research on this subject and to publish the results of such research for the guidance of others.[8]

Objective of the Nurse Aide Study

The aim of the study is to determine ability thresholds necessary for successful job performance through the testing of currently employed nurse aides.

Method of Conducting the Study

One experimental design was constructed to determine ability thresholds through testing for general mental ability and reading levels.

Rating classifications of different aspects of nursing performances were tested against selected personal characteristics, establishing the hypothesis that there was no relationship.[9] Non-responses varied in each experiment but were insignificant in number and were not included in the resultant figures. The nursing performance items, rated as above average, average, and below average, included quality of nursing care given in meeting personal hygiene needs of the assigned patient, maintenance of an orderly work environment, economical use of supplies, and ability to organize work and to complete the assignment. Three other items with Ratings 1, 2, 3, and 4, (Rating 1 being the highest) included caring for the incontinent patient, following simple written instructions, and assuming the responsibilities of a nurse aide.

The personal characteristics selected for testing against the performance items were age, length of present employment, marital status, birthplace, level of education, and number of dependents.

Each nurse aide was classified as a nursing aide or a non-nursing aide according to the work assignment. Nursing aides, assigned to nursing

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[8] American Hospital Association, "Statement on Selection and Evaluation of Hospital Personnel," Hospitals, XXVI (February 1, 1964), 153.

[9] When this null hypothesis had to be rejected at the 1 percent level of significance in either the chi-square technique or the T-test of a difference between two mean scores, the conclusion would follow that performance ratings did depend on differences in the selected personal characteristics.

functions, were rated on the seven nursing performance items listed. Non-nursing aides, assigned to non-nursing functions, were rated on these also, except the items pertaining to quality of nursing care given and caring for the incontinent patient.

Description of the Test Battery

The following tests were used: The California Capacity Questionnaire and the Nelson Reading Test.

The California Capacity Questionnaire, hereafter referred to as the C.C.Q., is a short, easily administered, and dependable measure of general mental ability for ages 11 and above.

> Mental ability is one of the most significant factors which must be given attention in education and in occupational adjustment. Frequently, the degree of intelligence is the controlling factor in success. However, measures of capacity or intelligence should never be used alone, but should be considered in relation to other factors.[10]

It should be remembered that certain personality factors, such as a capacity for job loyalty, ability to get along with people, kindness, and tact, are as necessary and essential as the ability to do certain kinds of jobs.

The C.C.Q.[11] interprets general mental ability (IQ) levels approximately as follows:

IQ	Descriptive Classifications	Percent of Typical Population Included
130 and above	Very superior	5
115 - 129	Superior	10
100 - 114	High average	35
85 - 99	Low average	35
70 - 84	Inferior	10
Below 70	Very inferior	5

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[10] E. T. Sullivan, W. W. Clark, and E. W. Tiegs, Manual of Directions, California Capacity Questionnaire, California Test Bureau, Del Monte Research Park, Monterey, California, 1941, p. 3. For statement regarding test's reliability and validity, see p. 2.

[11] Ibid., p. 3.

The Nelson Reading Test is a short, easily administered, and dependable measure of vocabulary and paragraph comprehension levels.[12]

Experience with some 3000 successful practical nurse graduates from the Practical Nursing Program, Chicago Public Schools, indicates that reading comprehension has value in predicting academic success. Students with less than eighth grade reading comprehension level have academic difficulties. Given other factors, such as sound health, acceptable work, and character references, and a two-year high school educational level, chances for success for practical nursing students with less than eighth grade level of reading comprehension are doubtful.

Pretest Identification Form

This form was used to aid in test control and to obtain personal information regarding age, sex, marital status, birthplace, employer, race, religion, level of education, number and ages of children, number of dependents, Red Cross courses studied, and type and length of previous and present employment. Not all factors sought were planned for use in the study.

Nursing Performance Assessment Form

This form was used to rate the performance of the nurse aide in nursing situations relevant to the job. The assessor was the registered professional nurse to whose ward or department the nurse aide was assigned. Performances were rated according to appropriate categories:

below average--acceptable minimum level of performance
average --usually satisfactory level of performance
above average--consistently satisfactory level of performance

This form was approved at a meeting of several nursing directors of participating agencies. It was agreed that the nursing situation items selected were indicative of nurse aide functions and that evaluation of performance, though subjective, was to be based upon the judgments of registered professional nurses whose nursing background qualified them to judge in such matters. Since the nurse aide testees were currently employed, it was assumed that nursing performance was at an acceptable level.

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[12] M. J. Nelson, Examiner's Manual The Nelson Reading Test (Boston: Houghton Mifflin Company, (1962), p. 3. For statement regarding test's reliability and validity, see p. 20.

Selection of Sample

Selection of sample included 1136 nurse aides currently employed in 29 health agencies--23 general hospitals and 6 facilities for long-term care located in the city of Chicago. Twenty-two of the hospitals and 3 of the facilities for long term care represent 27 percent of the Illinois Hospital Association, District I membership. All 23 hospitals are accredited by the Joint Commission on Accreditation of Hospitals. The remaining 3 facilities for long term care represent 5 percent of the Chicago Nursing Home Association membership. Health agencies participating in this study were limited to those with membership in the Illinois Hospital Association or the Chicago Nursing Home Association and/or accreditation by the Joint Commission on Accreditation of Hospitals, denoting that defined standards for health care, set by these organizations, have been met.

The use of a cluster sample in this study, with hospitals and nursing homes chosen by judgment rather than by means of random procedures, is defended on three grounds: (1) the impracticality in terms of time and cost of a strictly random sample; (2) the need of being sure that minimum levels of performance were adequate; and (3) the probability that some of the study results might be used as criteria of selection or performance in other situations.

More explicitly, there were no complete and exact lists of nurse aides or of the number of nurse aides per agency, such as the initial random selection of respondents required. There was no time for as many return trips as would be necessary to administer tests to randomly chosen nurse aides. The tests, furthermore, had to be given on an organized basis, and it was well known that many smaller agencies could not afford to take the time necessary for testing from the regular schedule of duties, or did not have the facilities for group tests.

With respect to the second item above, it was necessary to anticipate the objection that all nurse aides currently employed were not performing at a minimum level of acceptable work. For this reason the testing program was limited to accredited hospitals and nursing homes, where, it could be presumed, the number of those doing unacceptable work would be minimal or nil. In some cases the choice of agencies to be samples was affected by the consideration that a competent administrator would offer effective cooperation.

Finally, it was realized that this was not a purely theoretical pilot study. It was launched in a context of forward-moving policy decisions with regard to the training of persons in health occupations on the sub-professional level. There was, therefore, considerable probability that some of the study's conclusions would be used, at least tentatively, as operating criteria in such programs.

It was felt that the operating criteria for formal training programs should be higher than those generated by the current group of nurse aides without the benefit of any formal training.

Testing Schedule

Each director of nursing service was asked to inform the nurse aide testees that:

1. They were to be participants in a nurse aide study on a voluntary basis.
2. Their test performance would have no bearing on their jobs.
3. The tests did not relate to nursing.
4. No advance study preparation was required.
5. Testees would not be identified by name anywhere in the study.

Test group sizes ranged from 4 to 38 in number; the most convenient group size was 20. Since every effort was made to avoid interruption of patient care, testing was scheduled at the health agency's convenience. Because the nurse aide was to be tested while on duty, testing time had to be limited to 2 hours. In several instances this limitation proved to be a handicap.

The testing program was completed in a 6-month period from April to September, 1965.

III

FINDINGS[13]

Measurable Qualities of the Currently Employed Nurse Aides in This Study

1. The general mental ability of the nurse aides in this study ranged from below 50 to 140, as measured by the California Capacity Questionnaire.

   However, some of the low test scores did not indicate poor mental ability but rather were the result of extraneous factors. Some testees had severe language or reading difficulties as demonstrated by inability to follow test directions. Some lacked familiarity with testing procedures as demonstrated by irrelevant questions asked about test information already given. Some claimed physical indisposition as a reason for not completing the tests. Some seemed to lack test motivation as demonstrated by an indifferent attitude. Finally, as in all tests, some questions may not have made due allowance for the diverse cultural backgrounds of the testees. Since it was impossible to establish test controls on such intangible factors, conservative judgment prompted the rejection of the lower 10 percent of test scores. As a result, the level of 65 was found to be the threshold value for general mental ability.

2. The reading levels for the nurse aides in this study ranged from "second grade and below" to "tenth grade and above" as measured by the Nelson Reading Test, Grades 3 to 9.

   For the same reasons as were given above, the lowest 10 percent of test scores were rejected. As a result, the grade level of 4.2 was found to be the threshold value for reading comprehension.

Descriptive Characteristics of the Currently Employed Nurse Aides in This Study[14]

1. The 1136 currently employed nurse aides in this study presented a heterogeniety of factors such as job function (nursing and non-nursing), employer, age, length of present employment, sex, marital status, birthplace, level of education, number of children and number of dependents.

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[13] Summary Tables are on file at the Chicago Board of Education.

[14] Percentages in this study have been calculated to the nearest whole number.

a. Eighty percent were classified as nursing aides and 20 percent were classified as non-nursing aides.

b. Forty-nine percent were employed in nonprofit health agencies; 47 percent were employed in tax-supported health agencies, and 4 percent were employed in proprietary facilities for long term care.

c. Eleven percent of the nurse aides were 21 years of age or under; 27 percent were between 22 and 30 years of age; 31 percent were between 31 and 40 years of age; 21 percent were between 41 and 50 years of age; and 10 percent were 51 years of age or older.

d. Distribution of nurse aides by length of present employment showed that 33 percent had 1 year or less (12 percent of which were employed for 3 months or less); 29 percent had 13 months to 4 years; 22 percent had 49 months to 10 years; 14 percent had 121 months to 20 years; and 2 percent had over 20 years.

e. Ninety-one percent of the nurse aides were females, and 9 percent were males.

f. Fifty-one percent of the nurse aides were married, and 22 percent were single. Twenty-seven percent represented those nurse aides who were divorced, separated, or widowed.

g. Forty-one percent of the nurse aides were born in the east south central section of the United States--Alabama, Kentucky, Mississippi, and Tennessee. The second largest group of 26 percent were born in the east north central states--Illinois, Indiana, Michigan, Ohio, and Wisconsin.

h. Fifty-two percent of the nurse aides had 4 years of high school, while 28 percent had 1 to 3 years; 7 percent had 8 grades or less, and 13 percent had some business school or college education.

i. Sixty-nine percent had children.

j. Fifty-one percent had dependents.

Performance Ratings of the Currently Employed Nurse Aides in This Study

1. The majority of the currently employed nurse aides were rated by their charge nurses as:

   a. Average performers in the maintenance of an orderly work environment. Sixty-six percent were rated as average, 31 percent as above average, and 3 percent as below average.

b. Average performers in the economical use of supplies. Seventy-four percent were rated as average, 24 percent as above average, and 2 percent as below average.

c. Average performers in the ability to organize work and to complete an assignment. Sixty-one percent were rated as average, 35 percent as above average, and 4 percent as below average.

d. Above average performers with respect to understanding written assignments and simple written instructions. Seventy-five percent received Rating 1 (top rating); 17 percent received Rating 2, 7 percent and 1 percent received Ratings 3 and 4 respectively.

e. Above average performers with respect to ability to assume the usual responsibilities of nurse aides. Forty percent received Rating 1 (top rating); 56 percent received Rating 2; and 4 percent received Rating 3.

2. The subgroup of 911 nursing aides (those assigned to nursing functions) were rated by their charge nurses as:

a. Average performers in quality of nursing care given in meeting personal hygiene needs of assigned patients including bed bath, oral hygiene, appropriate comfort measures, giving and removing of bedpan. Fifty-eight percent were rated as average, 38 percent as above average, and 4 percent as below average.

b. Above average performers with respect to caring for the incontinent patient promptly without being reminded. Seventy-one percent received Rating 1 (top rating); 27 percent received Rating 2; and 2 percent received Rating 3.

Performance Ratings Tested against Selected Characteristics[15]

1. When significant differences were found, they appeared in the nursing aide group only.

a. For quality of nursing care given by the nursing aide group, the married were over-represented in the above average rating and under-represented in the below average rating.

b. There was a significant difference in performance regarding the economical use of supplies when the nursing aide group

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[15] Based on the 1 percent level of significance in the chi-square technique, or the T-test of a difference between two mean scores.

was divided according to age. In particular, more than the expected number were rated above average if they were 41 years or older. On the other hand, less than the expected number were rated above average if they were between 22 and 30 years of age.

c. When the nursing aide group was divided by marital status, there was a significant difference in performance regarding the ability to organize work and to complete an assignment. More than the expected number of married people were rated above average and less than the expected number were rated below average.

d. There was a significant difference in performance regarding the care of an incontinent patient when the nursing aide group was divided by marital status. The married exceeded the expected proportion in the top rating while the non-married were below expectations.

e. When the nursing aide group was categorized into four ratings for performance in following simple written instructions, the mean reading scores of those in Rating 1 (top rating) were significantly different from the mean scores of those in Ratings 3 and 4, showing that the ability to follow simple written instructions did depend on reading levels.

2. No significant differences were found in the following situations.

a. Quality of nursing care given by the nursing aide group was not related to age, length of present employment, birthplace, level of education or number of dependents. In addition, the general mental ability or grade levels of reading were practically the same in the below average, average, and above average ratings.

b. When rating classifications for performance in the maintenance of an orderly work environment by non-nursing aides and nursing aides were tested against age, length of present employment, marital status, birthplace, level of education, number of dependents and test scores, the null hypothesis had to be accepted.

c. When rating classifications for performance in the economical use of supplies by non-nursing aides were tested against age, length of present employment, marital status, birthplace, level of education, number of dependents, and test scores, the null hypothesis had to be accepted. The same findings apply to the nursing aide group except in the age factor.

d. When rating classifications for the ability to organise work and to complete an assignment by non-nursing aides were tested against age, length of present employment, marital status, birthplace, level of education, number of dependents, and test scores, the null hypothesis had to be accepted. The same findings apply to the nursing aide group except in the marital status factor.

e. When rating classifications for performance in caring for the incontinent patient by nursing aides were tested against age, length of present employment, birthplace, level of education, number of dependents, and test scores, the null hypothesis had to be accepted.

f. When rating classifications for performance in following simple written instructions by non-nursing aides were tested against age, length of present employment, marital status, birthplace, level of education, number of dependents, and test scores, the null hypothesis had to be accepted. The same findings apply to the nursing aide group except in the reading comprehension factor.

g. When rating classifications for assuming nurse aide responsibilities by non-nursing and nursing aides were tested against age, length of present employment, marital status, birthplace, level of education, number of dependents, and test scores, the null hypothesis had to be accepted.

IV

CONCLUSIONS AND RECOMMENDATIONS

1. From the findings in this study, the unmarried workers, classified as nursing aides, received lower ratings than married workers in their performances in the areas of quality of nursing care, ability to organize work and to complete an assignment, and in caring for the incontinent patient.

   It can be recommended that unmarried workers classified as nursing aides need to be observed and assisted early in their job training if evidence of performance difficulties arises in areas of quality of nursing care given, ability to organize work and to complete assignments, and caring for the incontinent patient.

2. From the findings in this study, the workers between 22 and 30 years of age, classified as nursing aides, received lower ratings than workers 41 years of age and over in performance regarding the economical use of supplies.

   It can be recommended that, in the job training of workers between 22 and 30 years of age, classified as nursing aides, special emphasis be placed on the importance of the economical use of supplies.

3. Since it was found among the nurse aides, classified as nursing aides, that reading levels have an effect on the ability to follow simple written instructions, it is recommended that tests of reading comprehension be administered and classes in reading be required of persons who have the potential for significant improvement. This kind of assistance is available from a variety of agencies.

4. Since the general mental ability threshold of nurse aides, classified both as nursing and non-nursing aides, was 65 in the California Capacity Questionnaire, this figure can serve as a conservative criterion in future selective processes assuming the absence of factors that distort test results, e.g., severe language or reading difficulties.

5. Since the reading level threshold of nurse aides, classified both as nursing and non-nursing aides, was at the 4.2 grade level in the Nelson Reading Test, Grades 3-4, this figure can serve as a conservative criterion in future selective processes assuming the absence of factors that distort test results, e.g., severe language difficulties.

6. More thresholds must be defined by means of research, in terms of scores for other qualitative characteristics. The present study, as a preliminary step, has suggested two such thresholds (general mental ability and reading level), both measures of personal abilities. Manual dexterity is another quality which might be explored. There are no known criteria for attitude and motivation. If these criteria were also available, one would be closer to the goal of possessing a complete battery of tests to discern potentially competent nurse aides.

V

SUMMARY

The objective of this study was to determine ability thresholds necessary for successful job performance, through the testing of currently employed nurse aides.

A sample of 1136 nurse aides was divided into 911 "nursing aides" and 225 "non-nursing aides" based on nursing function assignments or non-nursing assignments, respectively. The registered professional nurses to whose ward or department the nurse aides were assigned, were asked to assess various aspects of job performance as below average, average, and above average (acceptable minimum level of performance, usually satisfactory level of performance, and consistently satisfactory level of performance, respectively). These ratings were then tested by the chi-square technique against selected personal information (age, length of present employment, marital status, birthplace, level of education, and number of dependents), and against general mental ability and reading test scores.

The major finding was that the unmarried "nursing aides" received lower ratings than the married in their performances in the areas of quality of nursing care given, ability to organize and to complete an assignment, and caring for the incontinent patient.

Another finding showed that "nursing aides" between 22 and 30 years of age received lower ratings than "nursing aides" 41 years of age and older in performance regarding the economical use of supplies.

It was also found that the general mental ability of the 1136 nurse aides in this study ranged from below 50 to 140 as measured by the California Capacity Questionnaire and that reading levels ranged from "second grade and below" to "tenth grade and above" as measured by the Nelson Reading Test, Grades 3 to 9. However, some of the low scores were not indicative of poor mental ability or an inability to read but rather were the result of extraneous factors, such as severe language difficulties, unfamiliarity with test-taking procedures, claimed physical indisposition, and a seeming lack of test motivation. Also, as in many tests, some questions may not have made due allowance for the diverse cultural backgrounds of the testees.

Since it was impossible to establish test controls on such intangible factors, conservative judgment prompted the rejection of the lower 10 percent of test scores. As a result, the level of 65 was found to be the threshold value for general mental ability and the grade level of 4.2 was found to be the threshold for reading comprehension.

APPENDIX A

PERFORMANCE RATINGS TESTED AGAINST SELECTED CHARACTERISTICS

The testees classified as nursing aides were rated on the first seven performance items listed on the assessment form. The testees classified as non-nursing aides were rated on items pertinent to their performance only. In each instance, the performance items were appropriately categorized; e.g., below average, average, and above average, and then tested against selected personal information. The selected personal information included age, length of present employment, marital status, birthplace, level of education, number of dependents, and scores in the C.C.Q. and the Nelson Reading Test. Non-responses varied in each experiment but were insignificant in number.

Quality of Nursing Care Given by Nursing Aides

Only nursing aides were rated on the item for quality of nursing care. The major finding was that quality of nursing care is related to the marital status of the person administering such care. The data were as follows:

Table 1

DISTRIBUTION OF PERFORMANCE LEVELS OF NURSING CARE ACCORDING TO MARITAL STATUS OF NURSING AIDES

Marital Status	Quality of Nursing Care by Marital Status of Nursing Aides: Below Average	Average	Above Average	Total
Non-married	21[a] (15.7)[b]	269 (246.7)	133 (160.6)	423[c]
Married	11 (163)	236 (258.3)	194 (166.4)	441[d]
	32	505	327	864

a Observed frequencies
b Expected frequencies determined by the chi-square technique
c 25 No responses
d 22 No responses

At the 1 percent level of significance, the chi-square value of 16.8333 is beyond the critical value of 9.210. An examination of the observed and expected values shows that the married, who are 51 percent of the total 864, are only 34 percent of the below average group of 32, 46 percent of the average group of 505, but 60 percent of the above average group of 327.

This item was also tested against age, length of present employment, birthplace, level of education, and number of dependents. No significant differences were found in these characteristics; i.e., differences in these characteristics did not produce different levels in quality of nursing care. For example, in an examination of quality of nursing care against age of the nursing aide, it was seen that the same proportion of below average, average, and above average ratings occurred at all age levels, even for 51 years and over.

Without getting into T-test methodology, it was found that general mental ability scores and grade levels of reading were practically the same for the below average, average, and above average groups in quality of nursing care given. Combining the non-language and language scores for a total of the C.C.Q. test, the mean for the total group is 35.891, equivalent to a general mental ability level of 82. When the group was placed into categories of performance ratings of below average, average, and above average, the means were practically the same, being equivalent to general mental ability levels of 80, 82 and 81 respectively.

The Nelson Reading Test gives separate scores for vocabulary and paragraph comprehension. The combination of these two factors for the nursing aide group gave a mean of 83.691, equivalent to a 6.7 grade reading level. The T-test value of 1.35 is less than the critical value of 2.58 when the Nelson Reading Test score (77.63) of the below average group in quality of nursing care is tested against the mean score (84.95) of the above average group. Since these were the most divergent averages, it follows that there is no significant relationship between quality of nursing care and reading comprehension. It was also seen by actual count that 34 percent of the nursing aides who were rated as above average in quality of nursing care had reading comprehension below the sixth grade reading level.

<u>Maintenance of an Orderly Work Environment by Non-Nursing Aides and Nursing Aides</u>

When this performance item was tested against the selected characteristics, no significant differences were found,

When the non-nursing aide group was categorized into below average, average, and above average ratings with regard to the maintenance of an orderly work environment, the respective mean scores of the total C.C.Q. were 40.20, 32.63, and 32.26, representing equivalent general mental ability levels of 86, 79, and 78. A T-test showed no significant differences between the mean scores of 40.20 and 32.26.

When the nursing aides were categorized as above, the respective mean scores were 32.81, 36.10, and 35.31, representing equivalent general mental ability levels of 79, 82 and 81. No significant differences exist between these means.

The vocabulary and paragraph comprehension scores were combined for a Nelson Reading Test score for the non-nursing aides. When the group was categorized into below average, average, and above average ratings, with regard to the maintenance of an orderly work environment, the respective mean scores were 81.40, 77.62 and 75.68, or grade equivalents of 6.8, 6.4, and 6.2.

When the nursing aides were categorized as above for the same test, the mean scores were 78.88, 83.32 and 83.90 or grade equivalents of 6.5, 6.7, and 6.7. There is no significant difference between the means of 78.88 and 83.90.

Economy in Use of Supplies

For this performance item tested against the selected personal characteristics for non-nursing aides and nursing aides, the only significant difference was found in the nursing aides group when this item was tested against age classification. Table 2 summarizes the data.

Table 2

DISTRIBUTION OF LEVELS
OF ECONOMICAL USE OF SUPPLIES
BY NURSING AIDES ACCORDING TO AGE GROUPS

Economical Use of Supplies by Age of Nursing Aides

Age	Below Average	Average	Above Average	Total
51 years and over	0 (1.9)	46 (54.1)	25 (14.9)	71
41-50	4 (4.5)	114 (125.8)	47 (34.7)	165
31-40	9 (7.7)	215 (214.3)	57 (59.0)	281
22-30	7 (6.7)	203 (187.6)	36 (51.7)	246
21 years and under	4 (3.1)	90 (86.2)	19 (23.7)	113
	24	668	184	876[a]

a 35 No responses

The chi-square value of 23.2577 at the 1 percent level of significance is greater than the critical value of 20.090. Regrouping of age classifications to cut down on theoretical cells with values less than 5 did not change the results.

The 51 years and older age group which should have 15 of the 184 above-average-rated nursing aides actually had 25. Similarly, while the 41 to 50 years of age group should have 35 of the 184 above average ratings, the group had 47. Conversely, the 22 to 30 years of age group, which should have had 52 of the 184 above average ratings, had only 36. In the other rating categories of below average, average and above average, all age groups are in line with expected proportions.

In regard to this item, "economical in the use of supplies", tested against the C.C.Q. total scores and the Nelson Reading Test scores, there were no significant differences between the mean scores in the rating categories of below average, average, and above average for the non-nursing aide groups.

Ability to Organize Work and to Complete an Assignment

When this performance item was tested against the selected characteristics for non-nursing and nursing aides, the only significant difference was found in the nursing aide group when this item was tested against marital status of testees. This is in line with the previous finding when quality of nursing care by nursing aides was tested against marital status of testees.

Table 3

DISTRIBUTION OF PERFORMANCE RATINGS
ON ABILITY TO ORGANIZE WORK AND TO COMPLETE AN ASSIGNMENT
ACCORDING TO MARITAL STATUS OF NURSING AIDES

Marital Status	Ability to Organize Work and to Complete an Assignment: Below Average	Average	Above Average	Total
Non-married	25 (16.8)	290 (279.1)	123 (142.2)	438[a]
Married	10 (18.2)	273 (283.9)	164 (144.8)	447[b]
	35	563	287	885

a 10 No responses
b 16 No responses

The chi-square value of 12.1917 exceeds the critical value of 9.210 at the 1 percent level of significance. The married nursing aides, instead of having 18 in the below average rating, have only 10; and, instead of having 145 in the above average rating, have 164.

When this item was tested against the C.C.Q. scores and the Nelson Reading Test score, there were no significant differences between the mean scores in the rating categories of the below average, average, and above average for the non-nursing aides and the nursing aides.

Caring for the Incontinent Patient

Only nursing aides were rated on this item. The rating scale follows.

In caring for the incontinent patient, this aide:

1. Promptly gives care without being reminded
   (Rating 1 - Top Rating)
2. Willingly gives care but usually has to be reminded
   (Rating 2)
3. Reluctantly gives care but usually has to be reminded.
   (Rating 3)

For simplicity, future references to these rating categories under this performance item will be in the form of "Rating 1", "Rating 2", and "Rating 3".

Significant differences were found when Ratings 1, 2, and 3 were tested against classifications of marital status.

Table 4

DISTRIBUTION OF PERFORMANCE RATINGS
ON CARING FOR THE INCONTINENT PATIENT
ACCORDING TO MARITAL STATUS OF NURSING AIDES

	Caring for the Incontinent Patient			
Marital Status	Promptly gives care without being reminded (Rating 1)	Willingly gives care but usually has to be reminded (Rating 2)	Reluctantly gives care and must be reminded (Rating 3)	Total
Non-married	285 (307.6)	136 (116.6)	11 (7.8)	432[a]
Married	344 (321.4)	101 (120.4)	6 (9.2)	451[b]
	629	237	17	883

a 16 No responses
b 12 No responses

At the 1 percent level of significance, the chi-square value of 11.8764 is beyond the critical value of 9.210. An examination of the observed and expected frequencies shows that the married, who are 51 percent of the total 883, are 55 percent of the 629 who received Rating 1. The non-married represent 49 percent of the total 883, but are only 45 percent of those in Rating 1.

There were no significant differences when this item was tested against age, length of present employment, birthplace, level of education, and number of dependents.

When this item was tested against the C.C.Q. total score and the Nelson Reading Test score, no significant differences appeared between the mean scores of the nursing aides in Ratings 1, 2, and 3.

Ability to Follow Simple Written Instructions

Both non-nursing aides and nursing aides were rated on this item. The rating scale follows.

In following instructions, this aide:

1. Has no difficulty understanding written assignments and simple written directions; for example, "Nothing by mouth." (Rating 1 - Top rating)
2. Frequently needs assistance to understand written assignments. (Rating 2)
3. Usually needs verbal assistance to understand written assignments and simple directions. (Rating 3)
4. Always needs verbal assistance. (Rating 4)

For simplicity, future references to these rating categories under this performance item will be in the form of "Rating 1," "Rating 2," "Rating 3," and "Rating 4."

Significant differences were found among nursing aides only when Ratings 1, 2, 3, and 4 were tested against the Nelson Reading Test scores. The mean Nelson Reading Test scores were:

84.867 for Rating 1
82.899 for Rating 2
73.525 for Rating 3
60.778 for Rating 4

These mean scores were equivalent to reading grade levels of 6.8, 6.7, 6.0, and 5.4, respectively. When T-tests were applied, testing the hypothesis of no difference between means of Rating 1 and Rating 3, and Rating 1 and Rating 4, these actual differences were the only ones found to be significant. The ability to follow simple written instructions is affected by reading level.

For this performance item tested against the other selected factors for non-nursing aides and nursing aides, no significant differences were found.

Ability to Assume Nurse Aide Responsibilities

Both non-nursing aides and nursing aides were rated on this item. The rating scale follows.

In fulfilling role, this aide:

1. Shows willingness to assume more responsibility than aides are usually given. (Rating 1 - Top rating)
2. Assumes usual responsibilities of aide. (Rating 2)
3. Assumes less responsibility than aides are usually given. (Rating 3)

For simplicity, future references to these rating categories under this performance item will be in the form of "Rating 1," "Rating 2," and "Rating 3."

For this performance item tested against the selected characteristics and tests, no significant differences were found.

Skills Performed Adequately by the Nursing Aide Group

This survey check was made for internal purposes. The results have no relationship to this study.

APPENDIX B

HEALTH OCCUPATIONS DEMONSTRATION PROGRAM ASSESSMENT FORM

Date_____

(Name)_____is employed as a nurse aide at the (Agency)_____. The information requested below will be used in correlation with this person's test results. For non-nursing aide, omit items A1, B1, B2, B3.

A. 1. Quality of care given in meeting personal hygiene needs of assigned patients. (Include bed bath, oral hygiene, appropriate comfort measures, giving and removal of bedpan and urinal.)

	Above Average	Average	Below Average
1.			

2. Maintenance of orderly work environment — 2. _____
3. Economical use of supplies — 3. _____
4. Ability to organize work and to complete the assignment — 4. _____

B. In caring for the incontinent patient, this aide:

	Check One
1. Promptly gives care without being reminded	1. ☐
2. Willingly gives care but usually has to be reminded	2. ☐
3. Reluctantly gives care and must be reminded	3. ☐

C. In following instructions, this aide:

	Check One
1. Has no difficulty understanding written assignments and simple written directions; e.g., "Nothing by mouth."	1. ☐
2. Frequently needs assistance in understanding written assignments	2. ☐
3. Usually needs verbal assistance in understanding written assignments and simple directions	3. ☐
4. Always needs verbal assistance	4. ☐

D. In fulfilling role, this aide

	Check One
1. Shows willingness to assume more responsibility than aides are usually given	1. ☐
2. Assumes usual responsibilities of aide	2. ☐
3. Assumes less responsibility than aides are usually given	3. ☐

E. Check statements which apply. This aide can adequately

1. Make empty beds	1. ☐
2. Take temperatures	2. ☐
3. Insert rectal tube	3. ☐
4. Give oral hygiene	4. ☐
5. Take pulses	5. ☐

For additional information or comments, use reverse side.

Assessor_____ Position _____

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